Vol. XI APRIL, 1900 No. 4

THE

NATIONAL GEOGRAPHIC MAGAZINE

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THE

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The list of contributors to the NATIONAL GEOGRAPHIC MAGAZINE includes nearly every United States citizen whose name has become identified with Arctic exploration, the Bering Sea controversy, the Alaska and Venezuela boundary disputes, or the new commercial and political questions arising from the acquisition of the Philippines.

The following articles will appear in the Magazine within the next few months:

"Russia," by Professor Edwin A. Grosvenor of Amherst College, Massachusetts.

"The Colonial Expansion of France," by Professor Jean C. Bracq of Vassar College, Poughkeepsie, New York.

"The Samoan Islands," by Mr Edwin Morgan, Secretary of the Samoan Commission.

"The Native Tribes of Patagonia," by Mr J. B. Hatcher of the Carnegie Museum, Pittsburg, Pennsylvania.

"The Characteristics of the Filipinos," by Hon. Dean C. Worcester of the Philippine Commission.

"Discoveries in the Fossil Fields of Wyoming in 1899," by Prof. Wilbur C. Knight of the University of Wyoming.

"Explorations on the Yangtse-Kiang, China," by Mr Wm. Barclay Parsons, C. E., surveyor of the railway route through the Yangtse-Kiang Valley.

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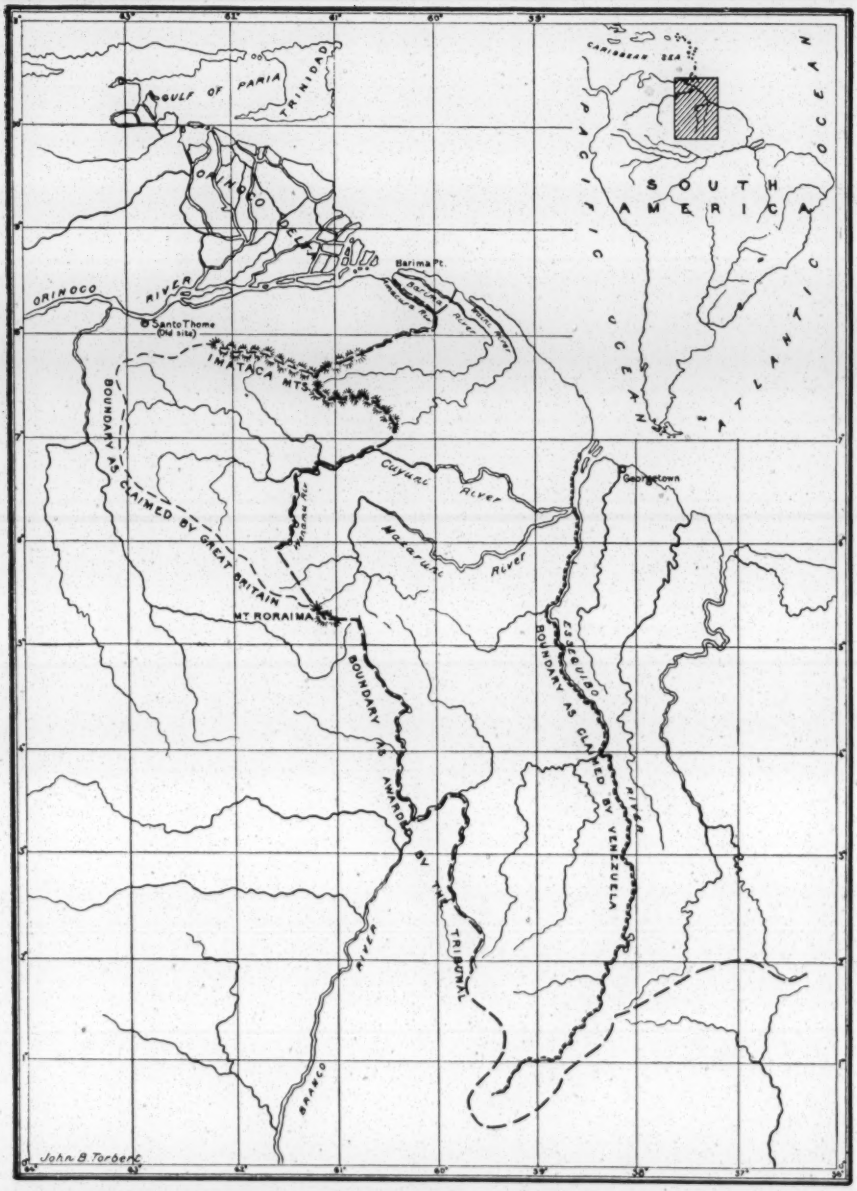


MAP SHOWING BOUNDARIES AS CLAIMED BY GREAT BRITAIN AND VENEZUELA AND AS AWARDED BY THE PARIS TRIBUNAL, 1899

THE

NATIONAL GEOGRAPHIC MAGAZINE

VOL. XI APRIL, 1900 NO. 4

THE ANGLO-VENEZUELAN BOUNDARY DISPUTE

By MARCUS BAKER,

Cartographer, U. S. Geological Survey

Introduction.—For nearly three score years Great Britain and Venezuela had wrangled over their boundary. No dividing line had ever been drawn by them, acting together. Venezuela always claimed to the Essequibo River. Great Britain, successor to the Dutch, claimed all the Dutch had had. The Dutch never established their limits on the Venezuelan side, and their indefinite western limit did not shrink in the hands of the British. In the course of a long diplomatic correspondence, proposals and counter-proposals were made and rejected. Thus for fifty-five years the squabble dragged on and on, from the days of Schomburgk, in 1841, to the day of Cleveland, in 1895. Cleveland's now famous message has been called harsh, but, as has been well pointed out and as the sequel shows, it made for peace. Sometimes a frank, blunt word, like the surgeon's lancet, hurts cruelly, but cures.

Already the story of this dispute is ancient history. It requires some imagination to recall the tension which, only four years ago, strained, almost to the breaking point, the friendly relations of the two greatest world powers. War between Spain and America; war between Great Britain and the South African Dutch; Venezuela torn and rent by civil war; and in the midst of it all a peace conference of the nations at the Hague striving, working, hoping for perpetual, universal peace.

Boundary disputes, whether between individuals or nations, are wont to be long and bitter; and, oftener than otherwise, changes of boundary result from war. Sometimes the result is direct, sometimes

indirect. The bitterness over the Alsace-Lorraine boundary is strikingly in evidence on the continent today. The boundary line between Massachusetts and New Hampshire, surveyed and marked in 1741, has, after a lapse of about 150 years, only recently been accepted. The Alaskan boundary, established in 1825, still drags on, unsurveyed and unmarked, a source of growing irritation and bitterness.

The Disputed Tract.—The tract in dispute comprised an area of about 50,000 square miles. England, with an area of 51,000 square miles, and New York, with an area of 49,000 square miles, is about equal in extent to the territory in dispute.

The tract is bounded on the east by the Essequibo, on the north by the Atlantic and lower Orinoco, on the west by a low, flat watershed separating it from the Caroni, an affluent of the lower Orinoco, and on the south by a mountainous district forming the watershed which separates the streams flowing northward to the Atlantic from those flowing southward to the Amazon. It is included between the 4th and 10th parallels of north latitude and between the 58th and 64th degrees of west longitude. It may be broadly characterized as a low, bench country, buried for the most part beneath a tropical forest of marvelous density and beauty. Lying near the heart of the torrid zone, with the sun passing day after day forever through or near the zenith, and through two rainy seasons of each year furnished for weeks together with downpours of warm rain that suggest a deluge, we have the conditions of nature's own hot-house. From these two conditions of excessive heat and excessive moisture comes the forest covering, which in density, beauty, and variety travelers agree in describing by the word *indescribable.* Beyond the forest tracts there are, in the interior, unforested districts called savannas, which, according to character of soil and altitude, are either swampy, hard and grass-covered, or partially desert. The culminating point of the region is Mount Roraima, about 220 miles from Demerara, on the coast, near latitude 4° and longitude 61°. This mountain is a sandstone mesa whose almost inaccessible flat top is 8,600 feet above the sea-level. Its walls are everywhere cliffs more than half a mile high. From this natural rock fortress the country gently slopes away and then drops in cliffs or benches, so far as we know. In this benched country are deep canyons, with numerous waterfalls—one the Kaieteur fall, on the Potaro, being 900 feet high. Pictures of Mount Roraima and Kaieteur Fall may be seen on the current issue of British Guiana postage stamps.

Guiana is a name that was applied three centuries ago to an extensive and ill-defined tract along the coast between the Amazon and the Orinoco. This has come, in course of time, to be possessed by French, Dutch, and English. The easternmost is French Guiana or Cayenne, whose Devils Island Dreyfus has made famous or infamous. Next west is Dutch Guiana or Surinam, and west of it is British Guiana, formerly the united colony of Essequibo and Demerara. Most of the part yet farther west, which was sometimes called Spanish or Venezuelan Guiana, has been awarded to Great Britain.

Great efforts were made by Spain three centuries ago to conquer and possess Guiana, a region reported and believed to be fabulously rich in gold. On the shores of a vast mythical sea rose a vast mythical town, El Dorado, presided over by a mythical, gilded king. Raleigh sought to conquer this country and its supposed wealth for his queen, Elizabeth; but the Spaniards contested his advance. His son was killed in the assault upon Santo Thomé. He returned to England, was accused by the Spanish minister of piracy, and by order of King James beheaded. But, though he wrote a book about Guiana which set the imagination of Europe on fire, little progress was made in penetrating or exploring it. And why? The answer is easy. The dense forests offered to the white traveler an almost impenetrable barrier. These were traversed by savage animals and yet more savage men, the ferocious, man-eating Caribs. The only practicable route to the interior was by the rivers; but the region is a bench country, rising, as one penetrates it, by a series of steps or benches. Thus it happens that, ascending the rivers (other than the Orinoco), the border land of alluvium on the coast is hardly passed before the traveler meets a cataract or rapid or series of rapids blocking the way. Patiently carrying or dragging his wood-skin canoe through dense woods around the obstacle, he may paddle a short distance against a strong current only to find another cataract and yet another in wearisome succession. To penetrate the interior through the water-soaked and swampy forest jungle is well-nigh impossible. To penetrate it by the streams is only possible in small boats, and then with difficulty and danger. These are the conditions and these the reasons why the world was so long in gaining its small store of knowledge about the interior of Raleigh's wonderland, Guiana.

Origin of Title.—Neither Venezuela nor Great Britain holds in South America by original title. Venezuela derives her title from Spain, a title acquired by war, with resulting conquest and cession. Great

Britain similarly acquired her title from the Dutch by war, with resulting conquest and cession. Venezuela succeeded to Spanish rights and Great Britain to Dutch rights. Thus the arbitral tribunal was engaged in trying the title to a piece of real estate. True, the estate was large; true, the parties were great corporations. Trial to the title of a tract claimed by two states of our Union may be tried before our Supreme Court, but no permanent court exists for trying the title to lands claimed by two nations. The appeal, therefore, has often, in such cases, been to the force of arms rather than to the force of argument. By agreement of the claimants in this case, the matter was to be settled by a battle of brains rather than by a battle of bullets.

Spain's title to the disputed territory is thus stated in Venezuela's case:

Spain first discovered the new world; first explored its continents; first explored, possessed, and settled Guiana, and first firmly established herself in that province as its sole and lawful owner.

Similarly, Venezuela's title is thus stated:

Venezuela revolted from Spain April 19, 1810. On March 30, 1845, Spain recognized Venezuela's independence and formally renounced in her favor all the sovereignty, rights, and claims previously her own in the territory formerly known as the Captaincy-General of Venezuela. Said territory included the region now in dispute.

Such is the Venezuelan title. The British title cannot be so succinctly stated. In very brief, however, it is as follows:

In 1581 the Dutch, then subjects of Spain, revolted and entered upon that long and bloody war which resulted in their independence in 1648. During this war the Dutch, in 1598, made a trading voyage to the Guiana coast. This voyage, made 100 years after the Spanish discovery of this coast, was the *first* Dutch voyage thereto of which we have any definite knowledge. Already Trinidad had been occupied by the Spanish, a Spanish settlement planted on the lower Orinoco, and formal and ceremonial possession taken of Guiana by Spaniards in the name of their King. In June, 1621, was created by the States-General of the United Netherlands the Dutch West India Company. By the terms of its charter no native or inhabitant of the Netherlands was permitted, except in the name of the company, to sail upon or trade with the countries of America and the West Indies, from Newfoundland to Cape Horn and from Cape Horn to Bering Strait. Trade to the New World, without permission of the company, was, by the charter, forbidden to all Dutchmen. The company ex-

isted for 53 years. After several extensions of its charter it finally died in 1674, and a wholly new Dutch West India Company was then created, which lived for 117 years, being finally dissolved in 1791.

Under the original charter of 1621 the company, in or about the year 1626, established a trading post some 50 miles up the Essequibo, at the junction of the Cuyuni and Mazaruni rivers, on a small, rocky islet, which they named Kykoveral, or See-over-all. Here lived a few unmarried employés of the company and carried on with the natives a trade for the dyes of the forest, balsam, hammocks, canoes, etc. There were no colonists, no cultivation, save possibly a bread garden, and no industries, save, probably, fishing for the use of the post. It was a trading post, and was, down to 1648, the sole Dutch occupation of the disputed tract. Under these conditions the long war between Spain and her rebellious subjects ended in 1648. By the treaty of peace at Münster in that year the Dutch achieved their independence. At the same time and by the same treaty Spain agreed that the Dutch should "remain in possession of and enjoy such lordships, towns, castles, fortresses, commerce, and countries of the . . . West Indies . . . and America" as they then held and possessed.

This, then, was the Dutch title, a title which remained Dutch for one hundred and sixty-six years. In April, 1796, Great Britain and the Netherlands being then at war, an English fleet appeared at Demerara and took possession of that river and Essequibo. Possession was held by the English for six years. In 1802, by the peace of Amiens, these possessions were restored to the Dutch. But war broke out again the next year, and Great Britain again took the possession which has since remained unbroken. The war, which broke out in 1803, was terminated by the treaty of London, in 1814, whereby the Netherlands ceded to Great Britain the Cape of Good Hope, in Africa, and the establishments of Demerara, Essequibo, and Berbice, in America.

Such is the Dutch-British title, which may be still more succinctly stated as follows: The Dutch, while subjects of Spain, revolt and squat on Spanish land in America. When the war ends Spain confirms to them the possession they have taken. This possession is afterward, in war, taken from the Dutch by the British. The possession taken by the British is confirmed to them by treaty, and such is the British title.

Schomburgk and His Line.—Much has been heard during this controversy about Schomburgk and his line. A few words, therefore, on this theme.

Robert Hermann Schomburgk was born in Freiburg, Saxony, in 1804, and died in Berlin in 1865, aged sixty-one. Between 1825 and 1830 he was in the United States, first in Boston and later in Richmond, Virginia, where he was in the tobacco business. Failing in this, he went to the West Indies, where he surveyed the island of Anegada. His published observations on the cultivated plants of the West Indies brought him to the notice of the Royal Geographical Society, which in 1834 engaged him to explore in Guiana. He reached Georgetown or Demerara, as it is usually called, for the first time on August 5, 1835, and for nine years thereafter was engaged in exploration and survey work in Guiana. For the Geographical Society he made three journeys, of about six months each, into the interior, and in October, 1839, returned to England. Early in 1840 he published his little book, entitled *Description of British Guiana*. The Geographical Society awarded him a gold medal, the King of Prussia knighted him, and the same year Great Britain engaged the now Sir Robert Schomburgk to survey the boundary between British Guiana and Venezuela. This was not to be a joint survey, but only a British survey, the results to be presented to Venezuela and Brazil as a statement of the British claim. He returned from England to Georgetown in October, 1840, and made three more trips to the interior, now under government auspices. In May, 1844, he took final leave of Guiana and went to Barbados, where he stayed some time and wrote a history of the island. In 1848 he was made British consul at Santo Domingo. In 1857 he was sent to Siam as Her Majesty's Consul-General. In declining health he returned to England in 1864 and retired on a pension. He died in Berlin the following year.

With him during a part of his explorations was his brother, Richard Schomburgk, a trained botanist, who published an interesting account of the Guiana exploration, a work in three stout octavo volumes. Sir Robert, having informed himself as well as the means at hand and his zeal for his employer would allow, proceeded to trace out on the ground a line, setting up posts, blazing trees, and marking them with British insignia. His zeal seems to have overmastered his judgment, and all doubts were resolved in favor of his employer. Why not? Was not his line, after all, only a claim? But, alas, it came later to be treated as a line of right. The Schomburgk boundary survey grievously offended Venezuela. She protested at once, and insisted upon the removal of the marks. To this Great Britain, at length, consented, with the usual proviso that

by such act she waived none of her rights. This survey of 1841 and the resulting correspondence may be regarded as the beginning of the controversy.

In 1841 Schomburgk submitted to Sir Henry Light, the governor of British Guiana, a report setting forth the grounds upon which he laid claim to the Amacura and Barima for Great Britain. This was an official report intended for the public, and was given to the public in a parliamentary paper. On the same day, however, he wrote to Governor Light a *confidential* letter, pointing out the importance to Great Britain of the possession of Point Barima as a point commanding the entrance to the Orinoco River. In this letter he dwelt at length upon the fact that the occupation of Barima meant the commercial and military control of the entire Orinoco region. He also furnished a map showing the line claimed by him for Great Britain. What the Foreign Office thought of Schomburgk's claim I do not know. Certain it is, however, that this map was not made public for many years. The line shown thereon, says Great Britain at the arbitration, is the *only* Schomburgk line—*i. e.*, the only line Schomburgk ever drew. Without assenting to or denying this, it may be remarked that the phrase *The Schomburgk Line* had come to mean, both in popular and official usage, something different from the line on Schomburgk's map that was sleeping, unknown to the public and unknown to some of the officials, in the government archives.

There was published early in 1877, in London, a large, fine map of British Guiana, which has been often referred to as the Great Colonial Map or Great Map of the Colony. The map was engraved and printed by Stanford, of London. It is dated 1875. Its long title indicates that it was compiled from surveys by Schomburgk and corrected to date from surveys by the crown surveyor of the colonies and by the government geologists, Brown and Sawkins. The map bears this note:

The boundaries indicated in this map are those laid down by the late Sir Robert Schomburgk, who was engaged in exploring the colony during the years 1835 to 1839 under the direction of the Royal Geographical Society; but the boundaries laid down between Brazil on the one side and Venezuela on the other and the colony of British Guiana must not be taken as authoritative, as they have never been adjusted by the respective governments; and an engagement subsists between the governments of Great Britain and Vene-

zuela by which neither is at liberty to encroach upon or occupy territory claimed by both.

This map, compiled from official sources and with an explicit statement that it shows the *Schomburgk line*, was accepted as the official map of the colony. When the geologists, Sawkins and Brown, made a geological survey and map of the colony they carried their work to the boundary line shown on this map, and stopped there.

In 1886 or 1887 another edition of this map appeared. There is nothing in its appearance, however, to indicate that it is a second or different edition; the title is unchanged and the date is still 1875, as before; but the note as to the boundary has disappeared and in place of the old line a new boundary, differing materially from the old one, appears, a boundary which enlarges British Guiana and contracts Venezuela. The change, made at the instance of the government, may be regarded as a first publication of the line submitted by Schomburgk in 1840. It is, perhaps, needless to comment on the anger aroused in Venezuela by this publication, or to wonder at their designation of the *caprichosa linea de Schomburgk*. Early in the history of the United States Commission on the Venezuelan Boundary a piece of elastic was sent in bearing the printed words *Schomburgk line*.

Thus much for Schomburgk and his line, of which little was said in the arguments of counsel for Venezuela at the arbitration. Whatever temptations the story offered for unkind words, those temptations were resisted, and the arguments were maintained upon a plane commensurate with the great cause and the great tribunal designated to try it.

Diplomatic Correspondence.—The story of the correspondence between the governments touching their boundary is too long and tangled for recital here. Suffice it to say that there were proposals and counter-proposals, all of which proved fruitless. No agreement was reached. Several times Venezuela proposed arbitration, and several times Great Britain refused arbitration. In October, 1886, the British Government inserted in the *London Gazette* a notice reciting that information had come that Venezuela had made grants of land in the disputed territory, and declaring that such grants would not be recognized. The notice continued as follows:

"A map showing the boundary between British Guiana and Venezuela, claimed by Her Majesty's Government, can be seen in the library of the Colonial Office, Downing Street, or at the office of the government secretary Georgetown, British Guiana."

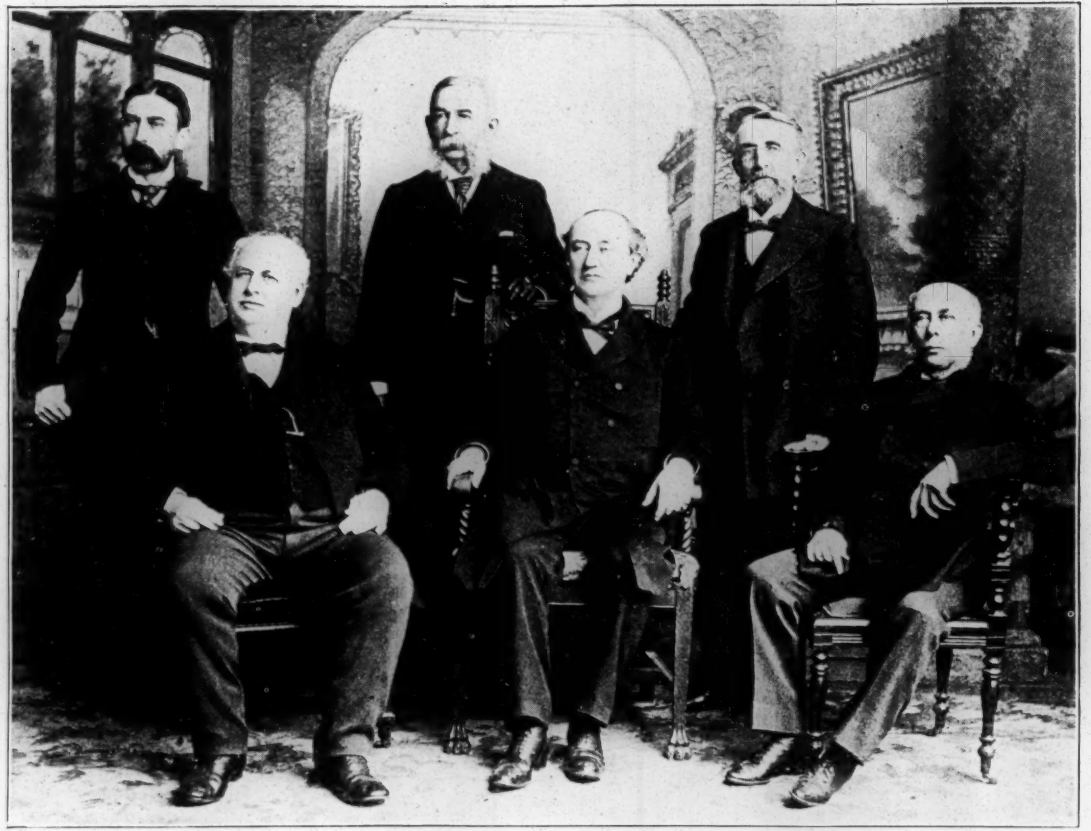
What map this was does not appear, but it was at about this time that the second edition of the Great Colonial Map appeared, the map bearing the expanded Schomburgk line. Prior to this notice, viz., in March, 1885, the British minister had commissioned two rural constables for the Amacura River, and in August, 1886, a British post was established on that river. Venezuela protested, and in January, 1887, demanded the immediate evacuation of the territory between the Amacura and the Pomeroon. This was not complied with, and Venezuela then broke off diplomatic relations. For ten years thereafter fruitless attempts were made to settle this old and irritating dispute. Meanwhile, and as early as 1886, the United States had manifested its interest in the question by offering to Great Britain its good offices in the matter. Finally, in February, 1896, after the famous Cleveland message of December, 1895, were begun the negotiations which led to the treaty of arbitration, which in turn ended the long dispute.

United States Intervention.—Mr Olney, Secretary of State in 1895, following up a correspondence begun as early as 1886, corresponded with Great Britain with a view to bringing about a settlement of the boundary question. This correspondence was, on the part of Mr Olney, direct, vigorous, logical, and forceful. In due time, which means several months, came, late in 1895, Lord Salisbury's careful, courteous, diplomatic, and dignified reply, again declining to arbitrate. Thereupon promptly followed Cleveland's message to Congress, a message wherein, after briefly summarizing the situation, he said that, having sought in vain to induce a just settlement by impartial arbitration and being finally apprised of Great Britain's refusal to so settle, nothing remained but for the United States to determine for its own purposes where was the true divisional line between Venezuela and British Guiana. He thereupon recommended that a commission of five be appointed to investigate and determine the true divisional line between Venezuela and British Guiana, and that an adequate appropriation be made for its use. Then followed these weighty and significant words, whose power to thrill has not yet vanished: "When such report is made and accepted, it will, in my opinion, be the duty of the United States to resist by every means in its power as a willful aggression upon its rights and interests the appropriation by Great Britain of any lands or the exercise of governmental jurisdiction over any territory which, after investigation, we have determined of right belongs to Venezuela." Within four days from the writing of this

message its recommendations had been enacted into law, and almost, if not quite, without parallel, not a single vote was recorded against it in either house. What stronger evidence of its non-partisan character is possible? And yet only last week a prominent London newspaper could say:

"We were brought to the verge of war four years ago for the sake of Mr Cleveland's reëlection, and a pretext for a diplomatic quarrel will never be wanting when the anti-English elements of the Republic have to be conciliated."

Thus, in January, 1896, was born the United States Venezuelan Boundary Commission, composed of David J. Brewer, Associate Justice of the Supreme Court of the United States; Richard H. Alvey, Chief Justice of the Court of Appeals of the District of Columbia, a skilled Spanish scholar; Mr F. R. Coudert, a distinguished member of the New York bar and of counsel for the United States in the Bering Sea case; Dr D. C. Gilman, geographer, president of Johns Hopkins University, and Dr Andrew D. White, historian and diplomatist. As its chairman, the commission chose Judge Brewer, and as secretary Mr S. Mallet-Prevost, of the New York bar, a thorough Spanish scholar and trained lawyer. Thus jurists, lawyers, and scholars composed the United States Commission, which organized forthwith, established an office in the Sun Building, on F street, and began investigation. Floods of information were poured in upon it, and floods of applications for employment. For a few weeks its work was the leading news item of the British and American press. To its aid it invited scholars—Justin Winsor, of Harvard College, distinguished for his great work on American history and cartography; Prof. J. Franklin Jamison, of Brown University, especially familiar with the history of the Dutch in America; and especially did it summon Prof. George L. Burr, of Cornell University, upon whom fell most of the historical research work. I have not ceased to marvel at the amount and excellence of the work done and results achieved by him. For aid in geographic matters the commission came to the Geological Survey, availing itself of the special knowledge of several of the experts in that office. After preliminary studies the work was organized, and Professor Burr went to Holland and to London to study the Dutch records. Here he was joined later by Mr Coudert. The secretary made, in the Harvard library, a special study of the maps of the region, and similar studies were carried on in Washington. It is not too much to say that the studies thus conducted threw much new light on the question; that supposed facts were in some important



Mr S. Mallet-Prevost Dr D. C. Gilman Dr Andrew D. White
Chief Justice Richard H. Alvey Justice Brewer Mr F. R. Coudert

THE UNITED STATES VENEZUELAN BOUNDARY COMMISSION, 1896-'97

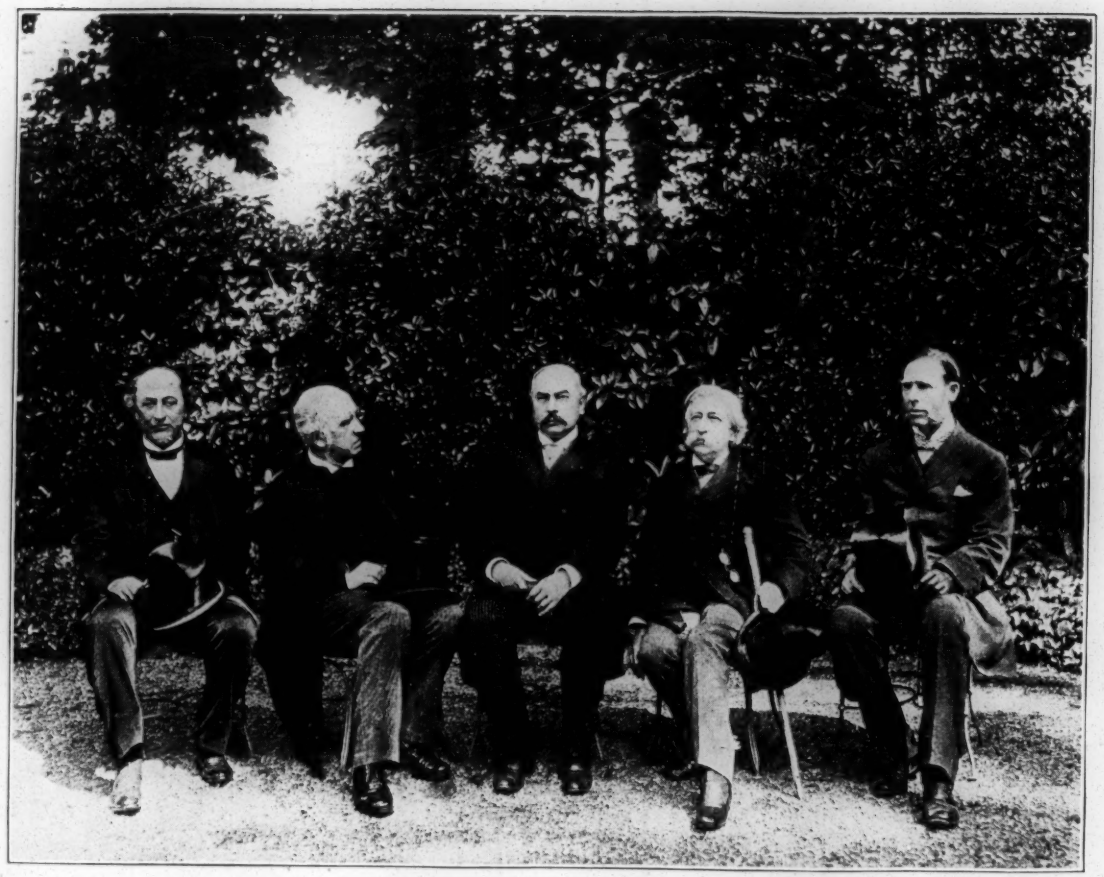
instances shown to be not real facts, and that consequently neither Great Britain nor Venezuela was master of its own case. Rarely, if ever, has a great case been sifted or studied with more thoroughness, impartiality, or care.

Meanwhile the diplomatic correspondence was proceeding with its usual deliberation, secrecy, and silence. It came to be seen that a finding adverse to Great Britain would produce an awkward situation. What influences were potent to bring about what actually resulted I cannot say, nor would it be wise to say if I could, but the result every one knows was an announcement by Lord Salisbury at the Lord Mayor's dinner in London, in November, 1896, that negotiations were in progress and so far advanced that he was justified in believing that a satisfactory solution of the much-vexed boundary question was about to be reached. This courteous and diplomatic statement meant arbitration, the arbitration which finally concluded, at Paris, on the 4th of last October, this ancient quarrel. Some three months after Lord Salisbury's announcement, to wit, on February 2, 1897, Sir Julian Pauncefote for Great Britain and Señor José Andrade for Venezuela signed in Washington a treaty of arbitration. That done, nothing remained for the United States Commission but to close its work and disband. The work of determining the boundary now passed on to the new tribunal constituted by the treaty.

The United States Commission had gathered a large amount of material useful for determining the question. Accordingly, in closing its work it prepared a brief report of its operations and accompanied it by appendices containing the material collected. This report consists of three octavo volumes and an atlas containing 76 maps, the whole constituting a distinct contribution to knowledge along geographic and historical lines.

The Arbitral Tribunal.—By the treaty there was constituted a tribunal of five jurists, composed of Lord Herschell and Lord Justice Collins, two of the foremost judges in Great Britain; Judges Fuller and Brewer of the Supreme Court of the United States, and the fifth to be chosen by those four. The English submitted the names of several jurists acceptable to them. Similarly, the American jurists submitted names of several jurists acceptable to them. In both lists was found the name of F. de Martens, a distinguished Russian writer on international law, and he was chosen as the fifth arbitrator. Before the case came to trial Lord Herschell died and was succeeded by Lord Russell.

On March 15, 1898, each party submitted in print its case, with accompanying papers. Venezuela's case was contained in three vol-



Justice Brewer Lord Russell Prof. Martens Chief Justice Fuller Lord Justice Collins

THE PARIS TRIBUNAL, 1899

umes and an atlas, Great Britain's in seven volumes and an atlas. Four months later, on July 15, 1898, each submitted its counter-case. Venezuela's counter-case made three volumes and an atlas, Great Britain's two volumes and a portfolio containing six maps. Four months later, on November 15, 1898, each submitted its printed argument, Venezuela's being contained in two volumes and Great Britain's in one. The formal sittings for hearing the oral argument began in Paris, June 15, 1899, and lasted through fifty-four sessions of four hours each, ending on the 27th of September. Just one week later, on October 4, 1899, the unanimous award of the tribunal was presented, and a controversy which had lasted for fifty-eight years, which had brought three nations to the very verge of war, was over.

Great Britain was represented by four counsel, Sir Richard E. Webster, Attorney General; Sir Robert T. Reid, ex-Attorney General; Mr G. R. Askwith, and Mr Rowlatt.

Venezuela was represented by Gen. Benjamin Harrison, ex-President of the United States; Mr S. Mallet-Prevost, formerly secretary of the United States Venezuelan Boundary Commission; Gen. Benjamin F. Tracy, and Mr James Russell Soley.

Sir Richard opened for Great Britain in a speech lasting thirteen days; Mr Mallet-Prevost followed for Venezuela in a speech of thirteen days. Finally Sir Richard closed for Great Britain and General Harrison for Venezuela. Can I be mistaken in thinking General Harrison's argument much the stronger one? The speeches were reported in shorthand and printed from day to day, the whole making eleven folio volumes.

The Award.—The award was completed and signed October 3, 1899, and is signed by all the judges. It is a short document, making only about half of an ordinary newspaper column. After reciting in legal phrase the creation of the tribunal, its membership, and its duties, it declares:

"Now we, the undersigned arbitrators, do hereby make and publish our decision, determination, and award of, upon, and concerning the questions submitted to us by the said treaty of arbitration, and do hereby, conformably to the said treaty of arbitration, finally decide, award, and determine that the boundary line between the colony of British Guiana and the United States of Venezuela is as follows:

"Starting from the coast at Point Playa, the line of boundary shall run in a straight line to the River Barima at its junction with the River Mururuma and thence along the midstream of the latter river to its source and from that point to the junction of the River Haiowa

with the Amakuru and thence along the midstream of the Amakuru to its source in the Imataka Ridge and thence in a southwesterly direction along the highest ridge of the spur of the Imataka Mountains opposite to the source of the Barima and thence along the summit of the main ridge in a southeasterly direction of the Imataka Mountains to the source of the Acarabisi to the Cuyuni and thence along the northern bank of the River Cuyuni westward to its junction with the Wenamu and thence following the midstream of the Wenamu to its westernmost source and thence in a direct line to the summit of Mount Roraima and from Mount Roraima to the source of the Cotinga and along the midstream of that river to its junction with the Takutu and thence along the midstream of the Takutu to its source, thence in a straight line to the western point of the Akarai Mountains and thence along the ridge of the Akarai Mountains to the source of the Corentin called the Cutari River."

In this award are involved two things: *first*, the sovereignty of a tract of country claimed by two nations; *second*, international arbitration as a mode of settling such disputes. As to the *first*, the award is clear, sharp, and decisive, though it will be contrary to general experience if difficulties of interpretation do not arise when the line is surveyed. As to the *second*, viz., the international arbitration of such questions, this is strengthened by a unanimous award, but weakened by the absence of a written opinion setting forth the facts and principles upon which the award was reached. As the common law has grown up and been established by the opinions of great jurists dealing with great cases, so here was, it seems to me, an exceptional opportunity to expound and establish principles of international law that would be most helpful in the future. The award is obviously the verdict of a widely disagreeing jury, which finally compromises on a line satisfactory to none. Such a decision concludes the particular dispute, but affords little light for the future.

In theory, principles of international law control; in fact, compromises control. The award is on its face a compromise. Moreover, on the day on which it was published there was cabled to America an interview with Justice Brewer, in which the reporter quotes him as saying:

> "Until the last moment I believed a decision would be quite impossible, and it was only by the greatest conciliation and mutual concessions that a compromise was arrived at. If any of us had been asked to give an award, each would have given one differing in extent and character. The consequence of this was that we had to adjust our different views, and finally to draw a line running between what each thought right."

Courts, other than criminal, are constituted to settle disputes—justly if possible, but to settle them; and so this august tribunal has settled this old and irritating dispute peacefully, lawfully, and I wish I could add, justly. Contrasted, however, with any other device for settlement, arbitration is the best practical mode yet devised, and is cheap. Last week a statement of the expense in the case of the Venezuelan Boundary Arbitration was presented to the House of Commons. The cost to Great Britain from 1895 up to last week was £65,625, or about $320,000. The cost to Venezuela is not published, so far as I know, but is probably not less. The appropriation by Congress for the United States Commission was $100,000. So that the total cost to the nations involved in a fierce and hot dispute, lasting four years, conducted by peaceful means, was about three-quarters of a million of dollars, equal to war-expenses for about one day. In the way of cost, then, arbitration is most economical; and as to *justice*, Venezuela gets not all she desired, but she does get control of the mouth of her great river, the Orinoco. Former British ministries had recognized the justice of her claim to this, and had proposed to cede to Venezuela this Orinoco mouth; but since the British moved forward into this tract some fifteen years ago and took possession by establishing police stations, issuing mining and timber licenses, etc., Venezuela's efforts to induce her to withdraw from the Orinoco mouth have been unavailing. Nor could she drive her out. By the arbitration, therefore, Venezuela, the weaker power, gets something which is of much value to her, which she has always prized, which Great Britain possessed herself of and the title to which she refused to arbitrate until after intervention. The very pith of the award lies in the possession and control of the Orinoco mouth. That Venezuela gets this is to my mind an act of justice and a triumph for arbitration, which does much to reconcile to a decision which I wish were in all respects as just as this.

But the European and American view of American questions is far apart. As to prior rights resulting from discovery, occupation, etc.; as to rights based on relations with the aborigines; as to the nature, extent, and effect of political control—respecting all these, America and Europe are far apart. Jurists of the highest ability and integrity are certain to find themselves holding irreconcilable views. All this is most significant and should never be lost sight of when arbitration is proposed as a mode of settlement.

KOREA — THE HERMIT NATION

By Commander HARRIE WEBSTER,

United States Navy

Korea—called by several writers "The Hermit Nation" and by its inhabitants Cho-sen, the Land of the Morning Calm—is that singular country in eastern Asia which stretches south from the elevated plains of Manchuria, and is bounded on the east by the Sea of Japan and on the west by the Yellow Sea. Its area of approximately 80,000 square miles sustains a population of some 12,000,000; but in both geography and population much is necessarily left to the imagination, for an accurate knowledge from any point of view is yet to be obtained.

The historical records also are meager and tinged with the Oriental tendency to assert as facts much that cannot be proven. Situated as she is, between two nations, each jealous of the influence and favor of the other, it has been her unfortunate fate to suffer attack and outrage from China and Japan in turn. She has been a battleground for centuries.

The physical characteristics of Korea have been aptly described by an English traveler as "a sea suddenly congealed during the progress of a gale of wind." The mountainous character of the country can only be appreciated by actual experience. The traveler is always certain that from the top of the next mountain plains and level ground will be disclosed; but no such good fortune awaits him, for the sole outlook from the ridges of Korea is upon other mountains, which in turn conceal still others. It has been said there is no level land in the country, and this is almost literally true.

As a natural result of the lack of plains, the rivers are frequent and small, the Han being perhaps the most important. At the mouth of this fine river is Chemulpho, and some 60 miles farther up, the capital, Seoul; but navigation between the two points is very difficult, as the tremendous tides along the coast exercise an influence even above the capital city.

The Han River is wild and picturesque, the numerous bends and rapids giving it a character unique for this part of the globe, where the vast alluvial plains of the Chinese Empire remind one of the

prairies of our western territories. The trip from Chemulpho to Seoul takes an entire day, a day fraught with incident and accident from start to finish. Numerous ruined forts, partly demolished walls, and picturesque villages lend an air of antiquity to the prospect, well seconded by the dress and character of the people.

The traveler has no definite means of transportation except those furnished by nature, and called in our own country "Shanks' mare." The wealthier officials, it is true, have sedan chairs, borne by four or

A VILLAGE IN KOREA — THE HAN RIVER IN THE DISTANCE

six men, but beyond this and an occasional saddle-pony the average Korean does his traveling on foot, and it is marvelous to contemplate the distances which can be covered by one of the native runners when engaged on government business.

The roads are even poorer than the means of traveling over them, and from the writer's experience it is evident that no attention has ever been given to laying out, making, or repairing roads in the kingdom. The wandering bridle-paths doing duty for roads spread

aimlessly over the landscape, changing direction with the seasons, but crowded with travelers at all seasons of the year, for the Korean is a restless being, and the custom of his country enables him at sundown, when the day's travel comes to an end, to accept the unquestioning hospitality of the nearest family. During the rainy season—October and November—these roads are almost impassable by reason of mud, and many of them become rushing torrents of water.

The climate is not very different from that in similar latitudes in the United States, from New York to North Carolina. At Chemulpho,

TWO KOREAN TRAVELERS

the principal seaport of the country, snow falls frequently from December to February, but does not remain on the ground for any length of time, owing to the proximity of the two seas bordering it on the east and west. The winter season, however, becomes very tedious by reason of the persistent winds which find their way through the innumerable gorges, chilling the traveler to the bone and rendering comfort impossible. They start far away to the north among the mountains and plains of Manchuria and sweep across the Korean peninsula with great force. It is for protection against the winds that the Korean tiger, that singular exotic from tropical regions, wears a thick coat of fur in place of the thinly distributed hair with which we are accustomed to see his Bengal brother clothed. In northern Korea rich harvests are gained by hunters of the smaller fur-bearing animals, such as squirrels, martens, and foxes, which find their principal market in China, a few of the poorer sorts going to Russia.

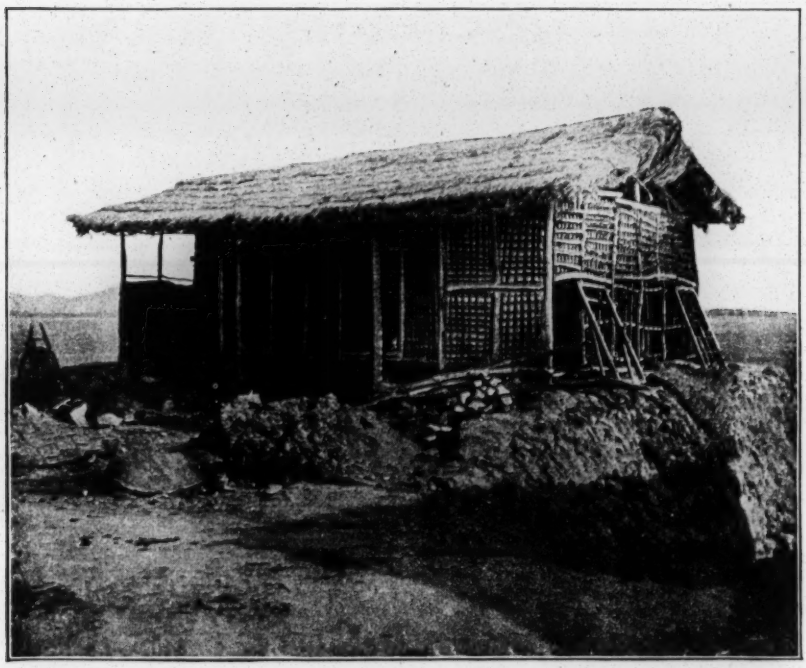
One of the striking objects in every landscape is the immense number of graves clustering on the sides of hills and in the neighborhood of groves of evergreens. On casual inspection these graves appear to be simple circular mounds of earth, varying in size according to the importance of the person buried and scattered without plan or order; but a careful examination of several hundred graves has convinced me that instead of being arranged subject to the whim of the survivors a very definite plan is followed, not only in their shapes, but in their disposition and arrangement. I found them, without exception, following the outline of the tortoise. So much care is bestowed upon this fancy that even the serrations of the shell and the flimsy tail possessed by the animal are carefully wrought out in these mementos of the dead.

Trees are generally planted in close proximity to a favorite cemetery, and it is looked upon as an act of desecration to destroy a tree standing near a grave. Respect for ancestors takes a curious direction here. While it is not unusual to hear one's father reviled in no measured terms without inciting anger, if so much as a pebble is cast at the grave of that father blood alone can wipe out the affront.

In appearance the Korean differs materially from his neighbors, the inhabitants of China and Japan, the coloring matter in his skin belonging to a different class from either. In common with them, however, his hair is black, straight, and coarse, and it is rarely that a bald Korean is seen. Their eyes do not have the slanting appearance

noticed in their neighbors, and the aquiline nose is not a rarity. Unlike the Japanese, however, the Korean does not wear his hair short, but apparently lets it grow from youth to old age with no attempt at clipping or trimming.

The Korean boy, up to sixteen years of age, is generally a delight to the eye. With his large, wide-open eyes, smooth skin, plump cheeks, and hair plaited down the back and parted in the middle, he has been compared to an angel. As the years advance, however, his



A HOUSE IN KOREA

beauty gives way to the coarseness and stolidity which have become national traits, and by the time the boy becomes a man the angel has disappeared, to be replaced by a very commonplace human being.

Girls and women, except of the laboring class, are seldom in evidence, and those of whom one gets glimpses are not very prepossessing, but so far as my observations extended they are plump and well kept, and if it were not for the plainness of the method of hair-dressing would be regarded as quite interesting in appearance. As may

be seen from the illustration, the Empire type of dress is adopted, giving them somewhat of a stumpy, high-shouldered appearance.

The Korean girl wears beneath her dress, encircling her bust, a swathing of two or three thicknesses of some thin material, which is drawn tightly about that portion of the female anatomy to which nature generally gives no little prominence, with the result that all Korean girls are flat-breasted. This fashion of compressing the bosom is continued until marriage, when the opposite extreme is adopted, and the bosom is exposed in a horizontal line by the curious arrangement of the little jacket, so that a nursing baby has no impediments to displace in his search for food. Babies are cared for after the style of Japan, and seem to be as happy and as well pleased with life. Owing to the miserable sanitary conditions existing in the Korean domestic arrangements, the mortality among children is said to be very high. Those who survive are literally the fittest for the battle for existence.

A GROUP OF KOREANS

The first object to strike the visitor to the Land of Morning Calm is the clothing of the inhabitants. The universal adoption of white, the singular hats, the foot-gear, all tend to impress upon the stranger the fact that he is in a part of the world which is uncontaminated by the customs of western civilization. The peculiar hats, shown in the illustration, are made of horsehair for the wealthy wearer and of finely split bamboo for his poorer brother; but beneath the hat proper is a sort of cap of the same material and so shaped as to protect the curious little topknot into which the hair is gathered after marriage. The band of this under cap is drawn tightly about the brows, oftentimes inflicting severe headaches upon the wearer. The other type of head covering shown is made of rice straw and is worn by country people and mourners.

The material of their white clothing may be either cotton, silk, or the so-called grass-cloth of China. The larger part of the cotton material used in the country is woven in Japan, but the silk and grass-cloth are frequently the product of domestic looms.

Many years ago—long before the "western barbarian" reached the shores of Cho-sen—the Koreans were noted among their Chinese and Japanese neighbors for the skill and taste displayed in textile manufactures, and the products of their looms could be found side by side with their pottery in all the markets then open in the East.

By the slow but sure degradation of wars, insurrections, and invasions manufactures and arts in Korea gradually lost their value in both quality and quantity, until today her people, rich and poor alike, are dependent upon China and Japan for a large percentage of their clothing and pottery.

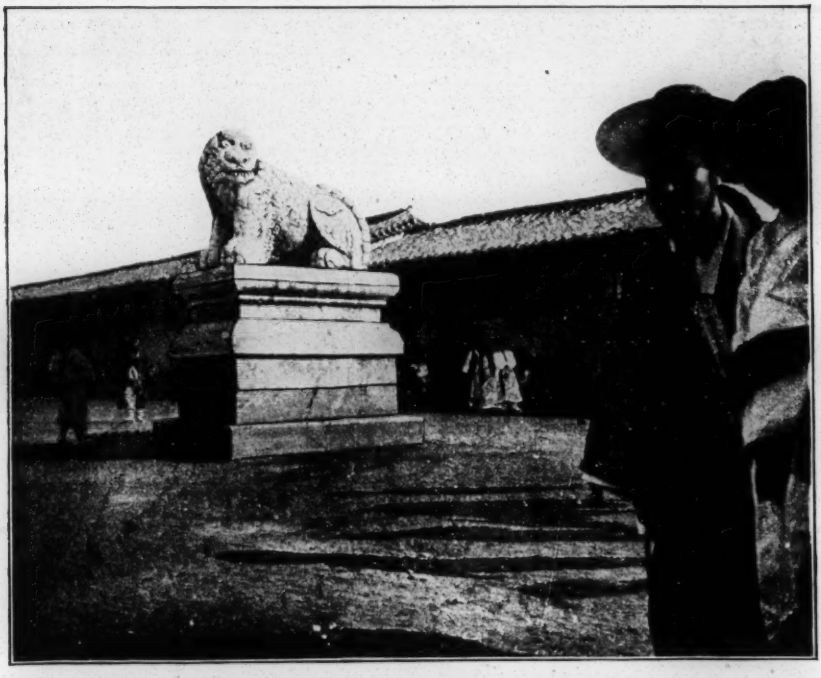
There is, however, one branch of manufacture, the working of bronze, in which the Hermit Nation easily leads, the use of this metal for domestic purposes being peculiar to this country. The bronze, which is of good quality, hard, and takes a good polish, is of an alloy of copper and tin, with a small per cent of zinc and a trace of iron. The bronze spoons, with which every family is liberally supplied, are models of grace, as are the hibachis or fire-pots, which are largely exported to Japan. These graceful bronze bowls are applied to every domestic use imaginable, in the kitchen for eating purposes and in the sleeping-rooms. The same material is used in the manufacture of the tobacco pipes in universal demand, and much taste is displayed in their ornamentation.

From the regularity and finish of these various bronze articles it is difficult to believe that the tools employed are scarcely an advance on those of two thousand years ago. For a lathe the Korean artisan uses an apparatus propelled by his feet as he sits on the ground, the motion being but a half revolution in each direction, while the turning tool is held in the hand. Necessarily the process is a slow one, but, as is common with all Orientals, time is no object, and the work turned out by these crude and archaic processes would do credit to an American workshop.

Recent investigation has shown that Korea is rich in many of the better class of minerals, gold, silver, copper, iron, and coal. The gold is almost solely in the more northern part of the kingdom and is associated in many cases with silver. A peculiarity of the gold mined is its intense yellow, resembling, in this respect, the flake gold winnowed from the sands of the African Gold Coast. The coal measures have not been very accurately exploited, but so far the output, which has been entirely by native enterprise and labor, is a fair bituminous and of considerable extent. The great and principal drawback to the prosecution of mining lies in the inaccessibility of the country to modern methods of transportation, as its physical characteristics preclude development on modern lines. Little is known of precious stones, for this form of personal adornment is not much in vogue among the Koreans, and few attempts have been made to develop the industry.

In religion the Korean must be marked with a minus sign. To all appearances he has none. There are, however, several Buddhist temples and monasteries in and around the city of Seoul. The only temple I had an opportunity of visiting while at the capital was that devoted to the god of war, and the edifice does not differ in any respect from Buddhist temples elsewhere.

As an architect, the native of Cho-sen, in times past, seems to have shown much skill in construction and boldness in design, several of the city gates of Seoul indicating artistic ability and a desire for impressiveness. The great south gate is a remarkable piece of work, and the fact that it is still in use as an entrance to the city shows the excellence of its construction. The north gate is built of carefully hewn granite blocks, and is as well proportioned and as true, from an architectural point of view, as though erected yesterday in commemoration of a modern victory. Granite seems to have been a favorite



GUARDIAN OF THE TEMPLE OF THE GOD OF WAR

material for the stone workers of the country. The delicacy of treatment shown in the huge dogs guarding the palace gate and the skill shown in the picture of the guardian of the temple of the god of war confirm the Korean boast that from them Japan and China received a large part of their skill and taste in art. However this may be, it is undeniable that Korean art must have been at one time of high character.

One of the objects of interest in Seoul, and, though in audible evidence each day, seen by few foreigners, is the great bell. Unlike the great bell of Moscow, the big bell of Seoul, said to be third in size in the world, is as perfect today as when first cast, and as the centuries roll by its tone grows mellower and more musical. It hangs in its original tower, in the center of the city, where its sonorous boom fills the air to all parts of Seoul and has opened and closed the gates of the city for nearly five centuries.

AN EXAMPLE OF KOREAN ART

In shape and general outline it is of the Japanese type. In fact, the Korean claims that the bells of Dai-Nippon have been modeled after those of Korea. The quality of the bronze was so excellent that the metal filled every mark in the mold, reproducing with perfect fidelity the delicately cut, classical Chinese characters forming the inscription: "Sye Cho the Great, Twelfth Year Man Cha (year of the cycle) and Moon, the fourth year of the Great Ming Emperor Hsüan-hua (A. D. 1468), the head of the Bureau of Royal Despatches, Sye Ko Chyeng, bearing the title Sa Ka Chyeng, had this pavilion erected and this bell hung."

The condition of the bell is perfect and the method of sounding it, with blows from a suspended beam, has no tendency to injure it, as does the more modern metallic tongue or clapper. Gongs are seen everywhere in this country, and, though hardly credible, many of them are sweet-toned and harmonious.

Twenty years have elapsed since the Hermit Nation opened its doors to the representatives of western civilization. Its progress in some directions has not been inconsiderable. Already the American trolley car runs beside the great bell and the first steam railroad in the kingdom is approaching completion under American supervision, with American material, and backed by American capital.

The political and commercial future of this interesting country will be watched with a widespread interest, and no people will extend a more willing and disinterested hand than the people of the United States of America.

THE GREAT SOUTH GATE OF SEOUL

AN ASSUMED INCONSTANCY IN THE LEVEL OF LAKE NICARAGUA; A QUESTION OF PERMANENCY OF THE NICARAGUA CANAL.

By C. Willard Hayes,

U. S. Geological Survey

A paper under the above heading by Prof. Angelo Heilprin appears in the *Scientific American* of February 24, 1900. To one not familiar with the investigations which have been carried on in this portion of the isthmian region, the conclusions reached by Professor Heilprin appear to have some foundation; and since they cast a doubt upon the feasibility of the proposed Nicaragua Canal and on its permanence after construction, the questions raised are of sufficient importance to be answered somewhat fully.

Stated very briefly, Professor Heilprin's premises and conclusion are as follows: In 1781 the Spanish engineer Galisteo determined the altitude of Lake Nicaragua to be 133.11 feet above low water in the Pacific. Later, in 1838, Lieutenant Baily ran a line of levels from the Pacific and made the altitude of the lake surface 128.3 feet above low water at San Juan del Sur on the Pacific. In 1852 Colonel Childs surveyed a route for an isthmian canal and determined the elevation of the lake to be about 108 feet above mean sea-level. Subsequent determinations by Lull in 1873, Menocal in 1885, the Maritime Canal Company in 1890, and the Nicaragua Canal Commission in 1898 have reached substantial agreement as to the elevation of the lake, making its mean about 104 feet above mean tide in the Pacific. This discrepancy of 20 to 25 feet between the earlier and later determinations of the lake level has generally been ascribed to the inaccuracy of the earlier surveys. Professor Heilprin, however, concludes that the earlier determinations were correct, and that the level of the lake has subsided that amount between the dates of the earlier and the later surveys. It will readily be seen that a region subject to a change in elevation of 20 feet in a period of 14 years (between 1838 and 1852) would offer serious obstacles to the construction of a canal of the magnitude of the one proposed or to its permanency after construction.

Three causes, singly or in combination, might bring about a change in altitude of the lake surface: (1) A depression of the whole of this

portion of the isthmus without warping; (2) a depression of the lake basin by warping, the sea margins remaining constant; (3) a cutting down of the lake outlet.

(1) If the whole isthmian region had undergone recent subsidence, the evidence of such a change would be manifest at the coast. Greytown is located upon a low sandy beach, which was thrown up by the surf, and has within the past century been cut off from the sea by a sand spit which inclosed first a harbor and then a closed lagoon. This land has not been added to since it was exposed to the surf, early in the century, and any change in elevation, even of a few feet, would be quickly apparent and would be a matter of record. The surface of the San Juan deltaplain ascends from the margin of the sea with a regular gradient merging at its inner margin with the floodplain, as determined by the volume and load of the river. This regular gradient precludes the possibility of any recent change in altitude of this region. Even a slight subsidence would permanently flood extensive areas, and a corresponding rise would cause the streams to deepen their channels so that the flood waters would no longer overtop the banks.

The same evidence of stability is in general true of the Pacific coast. The streams flowing to the Pacific from the divide opposite the southern end of the lake occupy, in their lower courses, drowned channels which have been more or less completely silted up. Any recent depression of the coast would have flooded these alluvial valleys and produced irregularities in their gradient. No such flooding is observed, but, on the contrary, unmistakable evidence that present conditions have prevailed for a considerable time, certainly for several centuries. In the vicinity of Corinto, on the Pacific coast, northwest of the depression which holds lakes Nicaragua and Managua, there has been a recent subsidence of a few inches, and this is well recognized by the people of the region, and its amount has been determined by the engineers of the railroad which runs from Corinto to Momotombo. This shows that rapid changes of level even of small amount are quickly recognized, and that a depression of 20 feet of any occupied portion of the coast could not possibly escape notice.

(2) Lake Nicaragua is about 100 miles long and 45 broad. It formerly extended eastward at least 25 miles farther to the present position of Castillo Rapids. Now it has been shown above that the coast on either side of the isthmus, at least opposite the southern end of the lake, has not suffered recent subsidence. A depression of the

lake basin itself sufficient to produce a decrease in the altitude of its surface amounting to 20 feet would almost certainly have produced more or less tilting of the surface by the subsidence of some portions of the lake's perimeter more than others. It is quite inconceivable that the region should have been warped in such a manner that the lake shore at Las Lajas should be lowered 20 feet, while the Pacific coast, only 12 miles distant, was not affected, and that at the same time every part of the lake shore should also be depressed an exactly equal amount. But if the basin had been unequally depressed, some portions of the shore would be drowned, while at other points the lake bottom would be laid bare, and raised beaches left at the former shore line. Nearly the entire circuit of the lake was made by the writer, and its shores were carefully studied with the object of determining whether or not there existed any evidence of recent changes in level. Owing to the regularity of the winds which prevail in this region, the different portions of the lake shore present wide differences in character, but there is everywhere a nice adjustment of shore features to present conditions. At the lower end and along the northeastern side, where there is generally an offshore wind and consequently no surf, the streams have built extensive deltas out into the lake, and the surface of the deltaplains and floodplains is regulated by the fluctuations in height of streams and lake due to seasonal changes. A depression of 6 feet relatively to lake level would permanently flood these deltaplains, while an elevation of equal amount would raise them above flood level and start the streams to deepening their channels and building new deltas at lower levels.

Along the southwestern side of the lake there is a rather heavy surf throughout the greater part of the year. Wave erosion is therefore progressing more or less rapidly, according to the character of the rocks. The width of the beach between the water margin and the base of the wave-cut cliff is everywhere perfectly adjusted to the seasonal fluctuations in level and the character of the materials in which the cliff is cut. Any recent change in the relation of lake level to shore would necessitate a readjustment of these conditions. An elevation relatively to lake level would have raised beaches above the reach of the highest flood water. A depression would drown the beach and start the waves to cutting at a higher level. Nothing of this kind was found, and it is certain that the relations of lake level to land have not suffered recent change on this side of the lake. The changes at the upper end of the lake, in the vicinity of Tipitapa River, cited by Professor Heilprin, will be discussed later.

(3) A third way in which the level of the lake might have been lowered is by the cutting down of its outlet. As fully explained in the report of the Canal Commission, 1897–'98, it appears probable that the level of the lake was early in its history determined by a rock sill over which the Rio San Juan flowed at Castillo. This sill has since been cut down somewhat, and the lake level is now held by the delta of the Rio Sabalos which forms the Toro Rapids. From the point where it issues from the lake to the Toro Rapids the Rio San Juan meanders through an alluvial plain, which represents a former extension of the lake silted up by tributary streams except for the channel kept open by the outflow from the lake. The surface of this plain stands at such a level that it is just covered by the streams when in flood. In other words, it has the character of a growing floodplain and proves conclusively that present relations have held for a considerable time. Any lowering of the lake level by cutting down the outlet would at once leave this alluvial plain above the reach of floods and completely change its character. As has already been pointed out, the sill which holds the lake at its present level is a delta deposit, and it will not long resist corrasion of the waters which cross it; so that in a relatively short time, as geological changes go, the river may be expected to begin the rapid trenching of its upper channel and eventually, unless artificially checked, lower the lake level.

The evidence that the lake level has not been lowered by this third method is, of course, confirmed by the absence of raised beaches about the lake, where they would certainly be a conspicuous feature if the change had taken place as suggested.

Changes in the conditions of the upper end of Lake Nicaragua have been cited by Professor Heilprin as evidence of recent lowering of the lake's level. This doubtless arises from ignorance of the peculiar physical conditions which prevail there. As stated above, the constant trade winds which sweep across the lake produce a heavy surf along its southwestern margin throughout the greater part of the year. The oblique direction at which the waves strike the shore sets up a strong littoral current, by which the sand is transported toward the northwest and deposited at the end of the lake. A sand spit 10 miles in length has been built across the point of the lake, cutting off a broad, shallow lagoon and crowding the Tipitapa River to the extreme margin of the valley. From the rate at which the shore in the vicinity of Granada is being cut away and at which

the materials are being transported northward, it is easy to understand how rapid changes might take place in the character of the Tipitapa River and convert it in a few years from a deep estuary to a shallow lagoon. The amount of water passing through the Tipitapa River is entirely independent of the elevation of Lake Nicaragua, since it depends wholly upon the relation between rainfall and evaporation in the basin of Lake Managua. Changed conditions at the head of the lake therefore do not in any way support the contention that the level of the lake has fallen in recent times.

It might be inferred from Professor Heilprin's article that Lake Nicaragua is in the heart of a volcanic region subjected to frequent destructive earthquakes. This subject of volcanism and the probability of earthquakes of sufficient intensity to injure canal structures is fully discussed in the recent report of the Canal Commission. It need only be stated here that the canal region lies midway between the Costa Rican volcanoes to the south and the Nicaraguan volcanoes to the north, and that the volcanic activity in both these groups is evidently on the wane. No earthquake of destructive violence has visited the canal region since its occupancy by the Spaniards, and the two centers of the moderate seismic activity, namely, Irazu on the south and the Maribios Range on the north, are respectively 60 and 100 miles from the nearest portions of the canal route.

The quotation from the English engineer Colquhoun indicates that the latter was a superficial observer whose conclusions were drawn from a relatively short period of observation. It is quite true that the amount of water flowing in the lower San Juan is becoming smaller each year, but this is due to a corresponding increase in the Rio Colorado, which is now the main distributary from the head of the delta to the sea. This successive transfer of the main channel to more southerly distributaries has been fully discussed in the report above cited. Even between the head of the delta and the mouth of the San Carlos one is impressed in the dry season with the insignificant volume of the Rio San Juan, and if one's observations were confined to this period he might readily believe that a permanent diminution in the volume of the stream had taken place. This, however, is merely a seasonal fluctuation.

Professor Heilprin's citation of the fluctuation in altitude of various lakes, as Great Salt Lake and Lake Tanganyika, has no bearing whatever upon the question, since these are inclosed lakes and the observed great fluctuation of their levels is directly connected with cycles of

climatic change. The fluctuations in level of Lake Nicaragua due to seasonal changes have been fully discussed by Chief Engineer Wheeler and Hydrographer Davis in the report of the Canal Commission. This fluctuation possibly reaches an extreme range of 14 feet, although the ordinary range is undoubtedly less than 10 feet. With the rise in its surface due to extraordinary precipitation, the section of the outlet increases so rapidly that the balance is soon reached between inflow and outflow, and it is therefore impossible for the level of the lake to reach the elevation given by Lieutenant Baily merely by reason of heavy precipitation. It appears, therefore, in view of the consistent physiographic evidence, that notwithstanding these earlier determinations the level of Lake Nicaragua has remained constant except for slight seasonal fluctuations, at least for a period whose length has to be measured in centuries; and, furthermore, it appears that the geologic conditions in this portion of the isthmus are such that they afford a promise of future stability, and that the region is therefore favorable for the construction and maintenance of a work such as the proposed Nicaragua Canal.

THE ISTHMIAN CANAL COMMISSION

Three hundred surveyors and engineers are at present in the field in Panama and Nicaragua working for the Isthmian Canal Commission. They are examining with the greatest care the Nicaragua route, the Panama route, and all other routes suggested by any of the former surveys. There are also in the field a number of exploring parties in the hope of discovering sites that have been hitherto overlooked. To quote a member of the commission: "Our object is to do the work with such thoroughness that our results cannot be questioned at any future time. We have the reports of all previous surveys, but we shall cover every mile of ground through which we think it possible for the canal to be run. The country is varied and the work of the surveyors is difficult and progresses slowly, especially in the section about Darien. For this reason it is impossible to set even an approximate date for presenting our formal report to the State Department. Unless Congress especially requires one, we shall submit no preliminary report. Until our work is done, therefore, it is improper for any member of the commission to speak in regard to the merit of the several routes proposed."

"The present Panama Company," states Mr Edward Noble, of the American Commission, "has been spending the money it has mainly in making a narrow, deep cut through the great divide that they have to get through to reach the other coast. The work is being well done. In regard to the Chagres River, we have found that the Panama people have a feasible way to manage that, although everybody laughed at them when they said they could dam it. We have a surveying party at this point now making the necessary survey on their plans."

INTERNATIONAL ARBITRATION AND ITS POSSIBILITIES

The two wars that within the present century have resulted in the grea est changes in the map of the world have been that between France and Germany in 1870 and that between the United States and Spain in 1898. The former not only transferred Alsace and Lorraine to Germany, but unified and consolidated the latter country, welding a number of kingdoms and grand duchies, with Prussia at their head, into the great empire of which the King of Prussia was made the first ruler. The war between the United States and Spain not only removed the Spanish flag from the western hemisphere and planted that of the United States over Cuba and Puerto Rico, but made the Great Republic of the West the ruler of the largest group of islands in the East Indies. In a recent interesting article in the London *Spectator*, these two wars are mentioned as among those which would almost certainly have been prevented by the operation of even that qualified and moderate system of international arbitration which was the principal feature of the work of the Peace Conference at the Hague.

HELPING NAVIGATION

In the interest of commerce the U. S. Coast and Geodetic Survey has now nine vessels charting the bottom, looking for isolated rocks on which ships may strike, studying the ocean currents, and gathering data for the Coast Pilot. Whatever facilitates approach to or departure from the coast increases the value of our products. The whole country benefits from easier communication by sea, and aids to navigation are therefore in the interest of public prosperity. The dangers to navigation form an important chapter in hydrographic work. On some parts of the coast submerged rocks are the constant dread of the mariner. Unknown channels are also a source of apprehension, while continual changes occurring in harbors are always dangerous. Thousands of miles of soundings are run every year, shoreline is drawn, light-houses and buoys located, and new maps are made or old ones brought up to date.

The localities in which work is now actually under way are Chesapeake Bay, Puerto Rico (where three vessels are employed), San Francisco, Seattle, and the Hawaiian Islands. Under the shadow of Haleakala, the largest extinct crater in the world, lies the beautiful harbor of Kahului. This is the outlet for much of the sugar from the rich plantations of Maui. The Coast and Geodetic Survey steamer *Pathfinder* is now adding to our maritime knowledge of this port by hydrographic surveys and otherwise. The coast charts of Hawaii, often unsatisfactory and always less accurate than the commercial importance of the place would justify and demand, will now be steadily perfected. It is hoped to continue surveying operations in these vessels until the principal parts are completely charted.

It may not be generally known that the work of the British Hydrographic Department is done by a civilian force under the direction of the Admiralty. In

many respects the organization is similar to that of the U. S. Coast and Geodetic Survey. The ships employed are not men-of-war, but regularly appointed surveying vessels. In 1899 four of these were employed at home and seven in foreign waters. Hydrographic work has been in progress in England for 110 years, and will, of course, be continued as long as English commerce exists.

RAILWAY CONSTRUCTION AND IMPROVEMENTS

While the construction of new lines of railway in 1899 was the largest since 1890, there are many evidences that it is to the improvement of existing lines rather than to the building of new ones that the railway managers of the country are giving their attention. The doubling of existing tracks, the straightening out of curves, the substitution of iron or steel bridges for wooden structures, an increase in rolling stock, in the capacity of cars, and in the hauling power of locomotives, together with the adoption of improved signaling apparatus, are reported from many different quarters.

Perhaps the most notable recent occurrence in the railway world is the completion of the Pennsylvania Company's four-track road over the Alleghanies. For several years past the construction of the third and fourth tracks has been gradually approaching the summit of the range on both the eastern and western slopes, and recently the very costly undertaking was completed, the final stage of the work including the famous Horseshoe Curve.

Another interesting occurrence is the filling in of Sheep's Canyon on the Burlington and Missouri River Railroad, eight miles north of Edgemont, S. Dak. The railway formerly crossed this canyon by a wooden trestle 700 feet long and 126 feet high. This bridge has now been done away with, an immense embankment having taken its place. The work of construction involved the employment of 1,486 trains of 15 cars each, 22,290 carloads of earth, or about 320,000 cubic yards, being required for the fill.

WHERE EXPLORATION IS NEEDED

A number of startling geographic statements which were circulated in the daily papers during March may be cited without comment:

E. S. Grogran, returning to London after a two years' journey overland from the Cape to Cairo, reports entering near Lake Tanganyika a region of active volcanoes, where he encountered "enormous lava streams forming a veritable sea 40 by 60 miles and 100 feet deep, forests and herds of elephants being buried in liquid fire."

"The neighboring country," he says, "is occupied by some 5,000 Balekas, ferocious cannibals from the Kongo, who live by man-hunting." His guides told him that the country, covering 3,500 square miles, had been until recently densely populated, but that the people had virtually been killed and eaten by

the Balekas. He says the Balekas are not repulsive to look upon. Although small, they are well-built and have good features. Men and women go about stark naked, and their long hair gives them a peculiarly wild appearance.

A burning cliff, rising from 20 to 2,000 feet directly from the sea and 20 miles long, the whole one mass of flames and smoke, is said to have been discovered by Mr A. J. Stone, of the American Museum of Natural History, in his explorations of the northernmost coast of America during 1899.

But most curious of all is the statement of a Mr La Joie, a French Canadian, who claims to have just returned from the North Pole, in the vicinity of which he had lived for nearly two years. In his hunting in Canada he traveled further and further northward until, after a series of marvelous adventures, he reached what he believes is the North Pole. Here he found a wild tribe of people, who speak a language different from any known and write in hieroglyphics. The climate was much milder than further southward. Finally Mr La Joie effected his escape from the tribe, and by continuous traveling on snowshoes succeeded in regaining the civilized world.

WORK IN THE ARCTIC AND ANTARCTIC

A Scottish expedition will undoubtedly be organized to coöperate with the English and German Antarctic expeditions of 1901. The Weddell sea quadrant, south of the Atlantic Ocean, will be the Scottish sphere. As previously noted in the NATIONAL GEOGRAPHIC MAGAZINE (vol. X, p. 316), the British sphere will be south of the Pacific Ocean and the German south of the Indian Ocean.

Lieutenant Robert E. Peary has probably by this time left his winter quarters at Cape Sabine, Ellesmere Land, and is well started on his dash for the North Pole. The series of caches of stores planted by him last year will lessen the difficulties of his advance to Cape Joseph Henry, where the real trouble will begin. Mr Peary planned to take about a dozen picked Eskimo and some 80 dogs and as many loaded sledges as the latter can drag. When a sledge has been emptied it will be sent back to Cape Sabine with one of the drivers, and the rest will push on. Thus he hopes to reach Cape Joseph Henry with a large supply of provisions. From this point he will then set out with only two companions.

The first South Polar expedition to winter on Antarctic land has successfully reached Wellington, New Zealand. Mr Borchgrevink, the leader of the party, reports that the south magnetic pole has been located, and that the expedition reached latitude 78° 50′, the farthest south ever attained by sledge. The expedition, which was fitted out by Sir George Newnes, of London, left Hobart, Tasmania, on December 19, 1898. During the latter part of February, 1899, the members landed from the *Southern Cross* near Cape Adare, Victoria Land, it having been arranged that the steamer should leave them there with a full equipment of every kind, and should return for them early in 1900. Mr Borchgrevink's party consisted of nine, including himself. Lieut. W. Colbeck, R. N. R., was selected as first magnetic observer, to be assisted by Mr Louis Barnacchi;

Mr N. Hansen and Mr Hugh Evans were chosen as zoölogists, and Dr H. Kloevstad as medical officer. With them went two natives of Finland to look after ninety dogs.

Another effort to discover some clue to the fate of Andrée will be made this summer. The Swedish-Russian Expedition, which will leave about June 1 for Spitzbergen to relieve the party that is at present engaged in the work of measuring an arc of the meridian in that latitude, plans to make a detour to King Charles Land and carefully search the entire neighborhood. It will be remembered that in September of last year a buoy was picked up on the north coast of King Charles Land, at 80° north latitude and 25° east longitude, marked "Andrée's Polar Expedition." When taken to Stockholm and opened, it proved to be what Andrée had called "the North Pole Buoy," and in which he was to place a message when he passed the North Pole. However, a microscopical examination of the interior could discover no message. As the buoy could not have drifted to King Charles Land from the neighborhood of the Pole, the only conclusion possible is that it was a part of the wreckage of the expedition, and that possibly more wreckage may be found near by.

GEOGRAPHIC LITERATURE

Contemporary History of the World. By Edwin A. Grosvenor, Professor of European History in Amherst College. Pp. ix + 173, with colored maps. New York: Thomas Y. Crowell & Co. 1899. $1.00.

In the production of this unpretentious duodecimo volume of less than 200 pages the accomplished Professor of European History at Amherst has placed the American people under an obligation that probably neither he nor they as yet adequately appreciate. Of all enlightened nations we have hitherto been the most self-centered. Engrossed in the development of the material resources of our own country, in the building of innumerable cities, the creation of vast industrial enterprises, the binding together of the several parts of our far extending domain by the greatest system of railways in the world—the equivalent of a ten-track road around the globe at the equator—and in the practical application of science to the affairs of everyday life to an extent unknown in any other country, we have had neither time nor inclination to give more than a passing thought to the affairs of other nations. We have been to a large extent ignorant of their political and social systems, notwithstanding our composite character as a people, and although an enterprising newspaper press has vividly pictured to us from time to time the great events that have been occurring on the world's stage, even the chief actors have soon been forgotten or have become to us mere names, less familiar in some cases than the more remote historic personages immortalized by Scott or Bulwer or Dumas, and possessing even less individuality than Adam Bede or Colonel Sellers or David Harum. How many graduates of our high schools, or even of some of our state universities, know anything about Stein or Cavour; how many could tell us who covered himself with glory by his heroic defense of Kars in 1855, or who was ground between

three Prussian armies at Sadowa; how many could give even an intelligent guess as to what kingdom was annexed to Prussia in 1866, or what city was the capital of Italy from 1864 to 1871? Such questions would probably be scorned, not only by that utilitarian visitor to the Yellowstone Park who, gazing upon one of the most interesting scenes in that wonderful region, remarked what a good place it would be "to scald hogs in," but by thousands of other men whose utilitarianism has not found so extreme an expression; and yet no one can be familiar with the great events that led up to the unification of Germany, can know how Italy came to be something more than a mere geographical expression, or have much acquaintance with the profoundly interesting series of events that have attended the gradual decadence and dismemberment of the Ottoman Empire in Europe without knowing all these and a thousand other things of which our average college graduate is entirely ignorant.

But whatever ignorance as to modern European history has existed among us in the past, its continuance in the future will be absolutely without excuse. Professor Grosvenor's new book, published at a price considerably below that of the average text-book, presents a narrative of the principal events of the last fifty years in Europe and North America that, while modestly disclaiming to be more than a mere outline, contains a wealth of interesting information, breathes the true historic spirit in every line and word, and is characterized throughout by a literary grace that constitutes it a veritable royal road to one of the most important departments of human knowledge.

The book opens with a brief but graphic recital of the stirring events that made the year 1848 one of the turning-points in human history, and then proceeds to discuss the influence of those events upon Europe. Chapter II deals with the Second French Republic, brought to so speedy a termination by the *Coup d'Etat*. A glance at Central Europe, the scene of a temporary triumph of reaction, and we are introduced to the Second French Empire, which, lasting less than 18 years, was yet signalized by three of the greatest wars in history, and came to its end in the midst of the most stupendous events the world had witnessed since the overthrow of the First Napoleon.

Succeeding chapters discuss the rivalry between Prussia and Austria, culminating in the Seven Weeks' War; the disintegrating influences at work in the new Empire of Austria-Hungary; the regeneration of Italy and those epoch-making events which preceded the transfer of the capital to Rome; the spread of Nihilism in Russia; the interminable Eastern Question in all its various phases; France under the Third Republic; the partition of Africa, Asia, and Oceania; the foreign and domestic policies of successive British ministries, with the final near approach of Great Britain to universal suffrage and equal rights, and, last of all, the marvelous changes the half-century has witnessed in our own country, which, almost against its will, has taken its seat in the parliament of nations and has made itself respected and recognized as it never was before.

Had Professor Grosvenor dealt with European history as a unit, his book would have been deprived of much of what constitutes its chief value, namely, its adaptation to the needs of the historical novitiate. He might, with that literary skill of which he is an acknowledged master, have presented us with a series of graphic pictures that would have challenged our admiration; but Euro-

pean history is too many-sided to be looked at from more than one point of view at a time, and a composite historical picture is more attractive than instructive. The author's primary purpose was to instruct, and he accomplishes that purpose best by successively changing his point of view from capital to capital.

It may seem hypercritical to pick flaws in so nearly perfect an historical mosaic, but one would scarcely think the student should have to look in vain for any reference to that most dramatic and portentous of all diplomatic incidents, the meeting of the King of Prussia and M. Benedetti at Ems, an interview that precipitated the war, and that subsequent disclosures have shown to have been brought about by the wily Bismarck for the express purpose of rendering war inevitable by exposing his sovereign to insult. The absence in the chapter devoted to the United States of any reference to the presidential campaign of 1896, with the important issues that it involved and the unprecedented cleavage of party alignment by which it was rendered memorable, is likewise noticeable. When even the United States Government itself has published a map showing the Oregon country as a part of the Louisiana purchase, it is scarcely to be wondered at that the publishers of the present volume have fallen into a like error. The Government, however, made haste to correct its mistake, and its example will doubtless be followed in the next edition of Professor Grosvenor's book.

History is the foundation of political geography, and no apology need be offered for reviewing at this length a book not strictly geographical. Professor Grosvenor's modest volume is a contribution of the first importance to both sciences. Its educational value is of the highest, and the book should have a large sale, not only among schools and colleges, but also for use in the family circle.

J. Hyde.

GEOGRAPHIC MISCELLANEA

The wheat acreage of the United States for 1899 is estimated by the Statistician of the Department of Agriculture to have been 44,592,516, yielding 547,303,846 bushels, with a value of $319,545,259. The corn acreage was 82,108,587, yielding 2,078,143,933 bushels, valued at $629,210,110; the acreage in oats, 26,341,380, yielding 796,177,713 bushels, valued at $198,167,975. The barley crop is estimated at 73,381,563 bushels, the rye crop at 23,961,741 bushels, the potato crop at 228,783,232 bushels, and the hay crop at 56,655,756 tons.

The opening up of Cuba to American methods in every department of life is being repeatedly emphasized. In this direction the census of the island for 1900, taken under the direction of the U. S. War Department, and the data for which are now being tabulated under the general supervision of Mr Henry Gannett, will prove immediate and effective. As an instance might be cited the establishment of corporate limits to Habana, Matanzas, and other cities on the island. Before the present year not a single town or city in Cuba had distinctive bounds.

RESULTS of the surveys of Gila River, Arizona, have been published as *Water Supply and Irrigation Paper, No. 33*, of the United States Geological Survey. The bulletin gives a description of southern Arizona, with views illustrating the character of the country, and maps and diagrams showing the location of the sources of water supply and the possibilities of storing water for the development of agriculture. It is shown that the construction of storage works on Gila River at a cost of about one million dollars would many times compensate for the outlay, through the sale of public lands and the increase of taxable property.

THE second school of forestry to be founded in the United States will soon be established at Yale University, Mr and Mrs James W. Pinchot, of New York, and their sons, Gifford and Amos R. E., having generously endowed that institution with $150,000 for the purpose. Mr Gifford Pinchot is the forester of the U. S. Department of Agriculture, and his services to this cause are well known to the public. In addition to the gift of the large sum named, use is given to the University for a term of years of a large tract of forest land in Pike county, Pa., where the practical workings of economic forestry may be demonstrated—as well as the use of buildings in this locality serve as a local headquarters for the school. Mr Henry S. Graves will be the director of the school.

UNDER the law no one can do any dredging on the water front of Cape Nome within a three-mile limit without the authority of the War Department. That authority has now been granted in several instances because it was shown that the proposed dredging of sand would not interfere with navigation or the rights of owners of adjacent territory. The particular character of the sand to be dredged did not enter into the consideration of the case. The Secretary of War states that any one is privileged to dig for gold in the open sea, and the only question considered by the War Department is whether such operations conducted within the three-mile limit are an interference with navigation or an infringement on the rights of others. When these conditions are complied with the Department is prepared to grant permission to any one to dig in the beach at Cape Nome or at any point lying within three miles of low-water mark.

THE BUBONIC plague has increased in severity and extent during the past month. A dispatch from Cape Town to the London *Times* announced the discovery of a case in that port early in March. The infected vessel was an army transport from Rosario, Argentine, where the epidemic had prevailed for several months and where the quarantine had only recently been raised. In San Francisco several cases, supposed to be genuine, were discovered in Chinatown, but energetic measures have prevented contagion. Advices have also been received by the Surgeon-General of the Marine Hospital Service of the presence of the plague in the Island of Cozumel, off the east coast of Yucatan, Mexico. It had probably been brought here directly from Brazil. In Honolulu its severity seems to have passed, though a large number of sporadic cases are still arising. From Manila the disease has spread to Iloilo and also to Hilo. It has, however, been considerably retarded in its occupation of the Philippines. In India the frightful ravages have continued on the increase, with no prospect of immediate abatement. A recent telegram from Calcutta states that 4,725 deaths occurred in that city and in Bengal in a single week.

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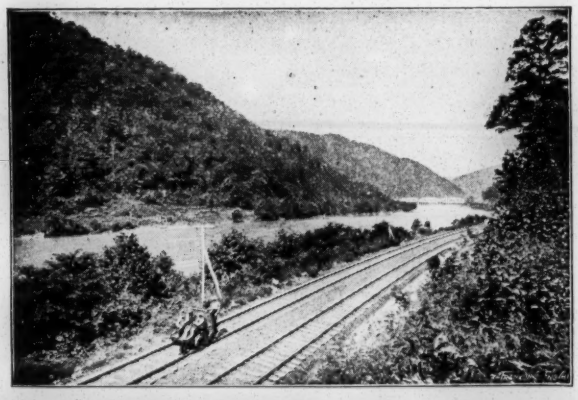

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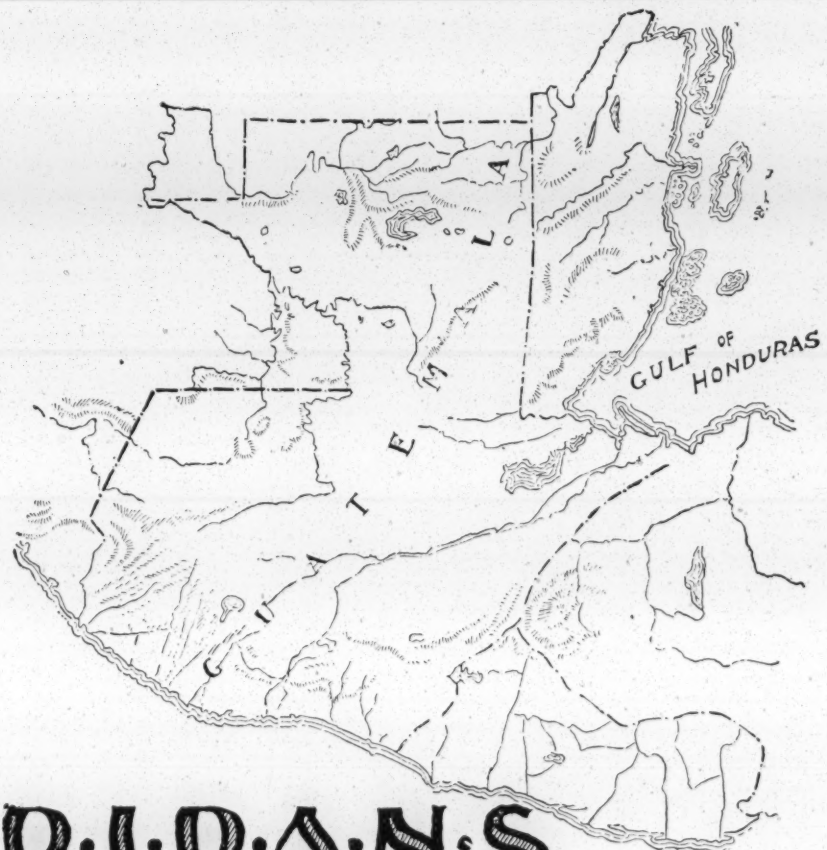

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THE ANNUAL FIELD MEETING

of the NATIONAL GEOGRAPHIC SOCIETY has been arranged so that the members of the Society may have an opportunity to observe the total eclipse of the sun which takes place on Monday, May 28. As the center of the belt of totality will pass near Norfolk, Virginia, the board of managers of the Society have made a conditional contract with the Norfolk & Washington Steamboat Company for an excursion to that city and vicinity. The party will leave Washington by the Norfolk & Washington steamer at 7 o'clock P. M., Sunday, May 27. Returning, leave Norfolk at 6 o'clock Monday afternoon, reaching Washington on Tuesday morning in time for breakfast at home.

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